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AU9162991, DE69103165D, DE69103165T, WO9211146**Tiivistelmä Abstract**

The invention relates to a transferring apparatus of the type comprising at least one lateral rolling track comprised of at least two parallel telescopic male slides (11) each comprised of a support rail (11a) fixed to the road platform (10), and a moving carrier rail (11b) intended to cooperate with one of the two corresponding female slides (22) preformed to this effect like an inverted U in the support plate (21) of a container (II), and a self-propelled rolling train comprised of two carriages (12) mounted movable along said extended male slides (11). The transfer apparatus of the invention is characterized in that said carrier rails (11b) of the telescopic male slides (11) are provided, evenly distributed throughout their length, with lifting cylinders (13) which are vertically extensible and retractable and are so arranged as to set, when said carrier rails (11b) are extended and housed inside the grooves (22a) of said female slides (22) of the container (II), between the railway platform (20) and the internal face of the horizontal branch of the inverted U of the female slides (22).

Applications: rail-road transport of containers.

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gang einerseits das Einziehen (Pfeil H1') der Tragschienen (11b) zu bewirken, um diese auf die Straßenplattform (10) zurückzubringen, und andererseits das Einziehen der Stangen der Hubkolben (14) ebenfalls zu bewirken, sodaß der Container (II) direkt und unabhängig von der Vorrichtung (I) auf der Straßenplattform (10) aufliegt.	5	least two parallel telescopic male slides (11) for cooperating with respective female slides (22) preformed for this purpose in the supporting plate (21) of said container (II) and having an inverted U profile, each of said male slides (11) being made of at least two juxtaposed rails of which one, called support rail (11a) is attached to the road platform (10) transversally to the side members thereof, and the other, called carrying rail (11b) is the rail that can be extended laterally in cantilever off the road platform (10) and into the galleries (22a) defined by the female slides (22) so as to be positioned above the rail platform (20) on which it leans,
10. Verfahren zum längsseitigen Umladen eines Containers (II) von einer Straßenplattform (10) aus, die mit der Vorrichtung (I) nach den Ansprüchen 1 bis 8 insgesamt versehenen ist, wobei das Verfahren besteht aus:	10	- and a self-propelled running carriage made of two wagons (12) movably mounted along said extended male slides (11) to be inserted into the galleries (22a) of said female slides (22), characterized in that said carrying rails (11b) of the telescopic male slides (11) are fitted with vertically extendable and retractable lifting actuators (13) arranged uniformly along their length and designed so as to be locked, when said carrying rails (11b) are extended and accommodated inside said galleries (22b) of said female slides (22) of said container (II), between the rail platform (20) and the internal aspect of the horizontal arm of the inverted U of the female slides (22), so that the extension of their rods causes the rise of the container (II) relative to the plane of the rail platform (20) to increase the height of the jambs of the galleries (22a) so that the wagons (12) of the self-propelled running carriage can be accommodated inside the female slides (22) and allow lateral transfer or longitudinal transfer of said container.
- in einem ersten Arbeitsvorgang dem seitlichen Gleiten (Pfeil H4) der einziehbaren Zylinder (31) nach außen vom Zwischengestell (III) weg zu bewirken, sodaß sie über das Laderaummaß des Fahrzeuges hinausragen können.	15	
- in einem zweiten Arbeitsvorgang die besagten einziehbaren Zylinder (31) senkrecht zu richten, und die seitliche Verschiebbarkeit (Pfeil H4) der einziehbaren Zylinder (31) zu bestimmen, um die Positionierung der männlichen Klemmen (32a) im Verhältnis zu den weiblichen Klemmen (32b) einzustellen,	20	
- in einem dritten Arbeitsvorgang dem Ausfahren (Pfeil V2) der Stangen der einziehbaren Zylinder (31) zu bewirken, um in einer ersten Phase das Eindringen der männlichen Klemmen (32a) der Gehäuse der einziehbaren Zylinder (31) in die weiblichen Klemmen (32b) des Containers (II), und in einer zweiten Phase das Heben des Zwischengestelles (III) und seiner Umladevorrichtung (I) mitsamt dem Container (II) im Verhältnis zu der Fläche der Straßenplattform (10) zu steuern,	25	
- in einem vierten und letzten Arbeitsvorgang die Straßenplattform (10) durch einfaches Vorfahren des Straßenfahrzeugs (Pfeil H3) von unter dem Zwischengestell (III) zu entfernen, sodaß die Umladevorrichtung (I), das Zwischengestell (III) und der Container (II) ausschließlich durch die einziehbaren Zylinder (31) gestützt auf den Boden stehen.	30	
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	45	2. Device as per claim 1, characterized in that the supporting rails (11a) of said telescopic male slides (11) are transversally attached to the side members (30) of an intermediate frame (III), which is removably mounted on the road platform (10) of the road vehicle.
	50	3. Device as per claims 1 and 2, characterized in that the supporting rails (11b) of said telescopic male slides (11) are mounted for vertical displacement using lifting means locked between the road platform (10) and said carrying rails (11b) of the telescopic male slides (11).
	55	4. Device as per claims 1 and 2, characterized in that said side members (30) of the intermediate frame (III) are provided with at least two pairs of

Claims

1. Device for the lateral transfer of a container (II) from the platform (10) of a vehicle, called road platform, to the platform of another vehicle, called rail platform, comprising at least:
 - one lateral rolling track composed of at

- retractable actuators (31) for displacement between a retracted position to be retracted under the intermediate frame (III) and a vertical position forming feet by being supported on the ground, wherein the extension and/or retraction movements of the actuator (31) rods cause the rise and/or descent of the intermediate frame (III) relative to the plane of the road platform, to allow longitudinal transfer of the intermediate frame (III) and of the entire lateral transfer device (I), with the container (II) lying thereon.
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5. Device as per claims 1, 2 and 3, characterized in that recesses are preformed in the thickness of the road platform (10) to allow engagement of the telescopic male slides (11) when the carrying rails (11b) are retracted above the road platform (10), so that the container (II) transferred on the road platform (10) can rest on the upper plane thereof.
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6. Device as per claims 1 to 5 together, characterized in that said wagons (12) of the self-propelled carriage are fitted with vertically extendable and retractable jacks (14) arranged uniformly along their length and with their head resting on the internal side of the horizontal arm of the inverted U of the female slides (22), so that, when the wagons (12) have slid into the galleries (22a), they can cause a rise of the container (II) to clear it from its bearing on said jacks (13) and to allow its transport by the wagons (12), supporting it with jacks (16), during the transfer phase itself.
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7. Device as per claims 2 and 4, characterized in that male clamps (32a) are fitted on the body of the retractable actuators (31) on their sides facing each other, to engage with appropriate female clamps (32b) provided in the external sides of the container (II) to accommodate them.
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8. Device as per claims 4 and 7, characterized in that said retractable actuators (31) are mounted to slide laterally (arrow H4) on the intermediate frame (III), in a plane parallel thereto, so that when these retractable actuators (31) are brought back inside the intermediate frame (III), they do not hinder the gauge width authorized by law of the vehicle parked for the longitudinal transfer operation.
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9. Method for the lateral transfer of a container (II) from the rail platform (20) to a road platform (10) using the device (I) as per claims 1, 3, 5 and 6 together, which method consists in:
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- firstly, bringing the road platform (10) parallel to the rail platform (20), at the same level as the latter,
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- secondly, extending the carrying rails (11b) laterally (horizontal arrow H1) so that they are extended and positioned inside the galleries (22a), above the rail platform (20),
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- thirdly, extending the rods of the jacks (13) (vertical arrow V1) to lift the container (II) off its base (20) made of the rail platform, thus increasing the height of the galleries (22a),
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- fourthly, displacing the wagons (12) of the self-propelled running carriage (horizontal arrow H2) from the road platform (10) to the rail platform (20), to accommodate them inside the galleries (22a) of the supporting plate (21) of the container (II),
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- fifthly, extending the rods of the jacks (14) (vertical arrow V1') so that the container (II) is lifted and separated from its bearing on the jacks (13) to rest only on the jacks (14) of the wagons (12) of the self-propelled running carriage while remaining lifted off the plane of the rail platform (20),
- sixthly, transporting the container (II) (arrow H2') carried by the wagons (12) from said self-propelled running carriage via the rolling track formed by both extended male slides (11), up to above the road platform (10),
- and seventhly and lastly, controlling the retraction (arrow H1') of the carrying rails (11b), on one hand, to bring them back on the road platform (10) and, on the other hand, the retraction of the rods of the jacks (14) so that the container (II) lies directly on the road platform (10), independently from the device (I).
10. Method for the longitudinal transfer of a container (II) from a road platform (10) fitted with the device (I) as per claims 1 to 8 together, which method consists in:
- firstly, causing the retractable jacks (31) to slide laterally (arrow H4) towards the outside of the intermediate frame (III) so that they can stand out from the vehicle gauge,
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- secondly, straightening up said retractable jacks (31) vertically and adjusting the lateral mobility (arrow H4) of the retractable jacks (31) so as to adjust the position of the male connections (32a) opposite the female connections (32b),
- thirdly, causing the extension (arrow V2) of the rods of the actuators (31) to control, in a first phase, the engagement of the male connections (32a) of the bodies of the retractable actuators (31) into the female connections (32b) of the container (II) and

in a second phase, the rise of the intermediate frame (III) and of its transferring device (I) along with the associated container (II), relative to the plane of the road platform (10),

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- and fourthly and lastly, disengaging (arrow H3) the road platform (10) from beneath the intermediate frame (III) by simply driving the road vehicle forward so that the transferring device (I), the intermediate frame (III) and the container (II) rest on the ground only with the support of the retractable actuators (31).

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